

Trend Study 10-9-00

Study site name: Agency Draw .

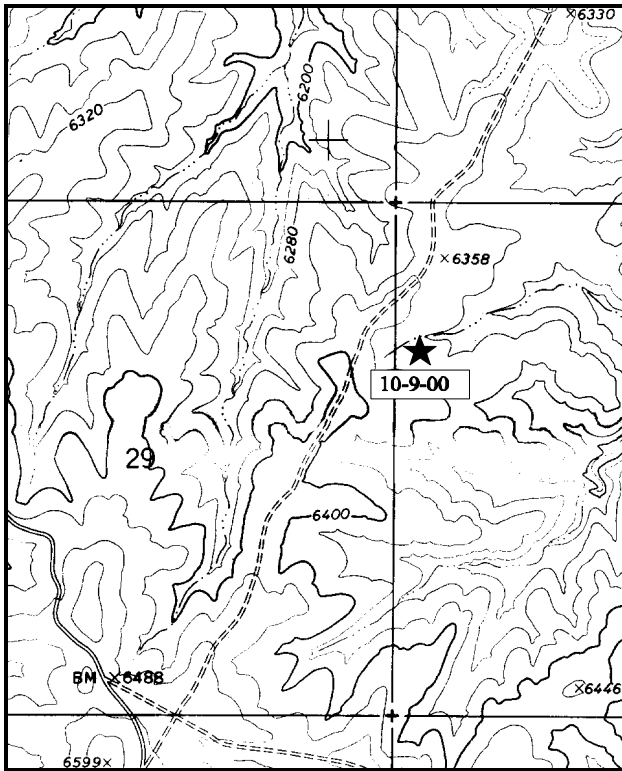
Range type: Desert Shrub .

Compass bearing: frequency baseline 45°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

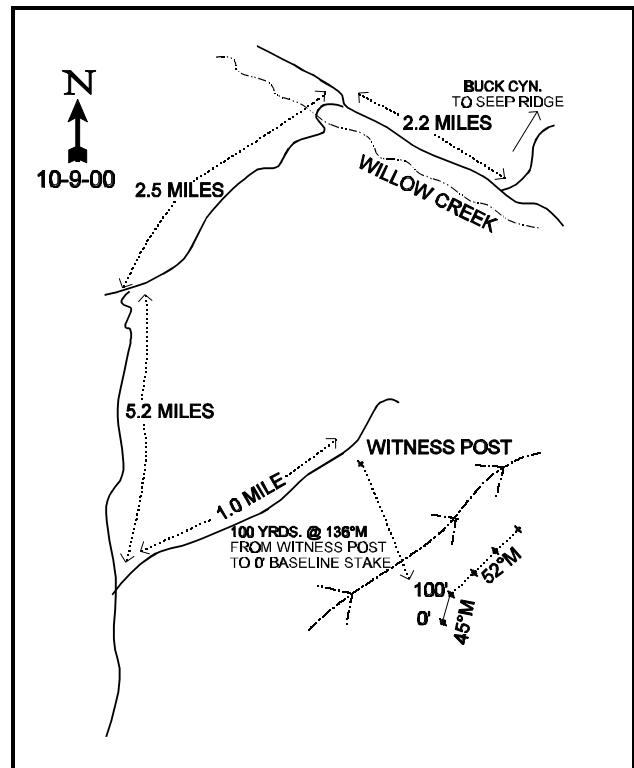
LOCATION DESCRIPTION

From the Seep Ridge Road, go down Buck Canyon to Willow Creek. Travel north down Willow Creek 2.2 miles to a fork. Bear left, cross Willow Creek then drive up out of the canyon 2.5 miles to a fork. Bear left. Continue 5.2 miles to an intersection. Turn left off the main road. Go down 0.1 miles to a small flat. Continue going straight (NE) down the ridge 0.9 miles to a witness post on the right side of the road. Walk 100 yards down into the draw, at a bearing of 136°. The 0-foot baseline stake is marked with a red browse tag, #9040. The frequency baseline is marked by green fenceposts, 12-18 inches in height.



Map Name: Agency Draw NE

Township 13S, Range 21E, Section 28



Diagrammatic Sketch

UTM. 4390832.556 N, 621735.983 E

DISCUSSION

Trend Study No. 10-9 (16A-9)

Actually located in the Willow Creek drainage, the Agency Draw study is representative of the big sagebrush and desert shrub communities found throughout the area. At 6,300 feet in elevation, Agency Draw is the lowest established site on the northern Book Cliffs and is managed by the BLM. The area has been grazed in the winter by cattle from January 1 to March 31. This is important winter range for deer and judging by the abundance of pellet groups, they spend most of their time in the draws. There has been abundant sign of winter use by sage grouse in the past, with a few birds being observed on an adjacent ridge at the time of study establishment in 1988. A small herd of elk has also been observed in the area. Pellet group transect data from 2000 estimate 49 deer days use/acre (121 ddu/ha) and 11 elk days use/acre (27 edu/ha). In addition, wild horses appear to be frequenting the area as 38 piles of horse droppings were sampled in the pellet transect in 2000. Several stud piles were also seen along the road to the site. No cattle pats were sampled in 2000.

The study site is located in the relatively flat bottom at the head of a draw. Drainage, via a three-foot deep gullied wash, is to the northeast on a 7% slope. Tall black greasewood and basin big sagebrush grow along the wash. The surrounding low ridges are occupied by pinyon- juniper, and black sagebrush.

The site occurs between the deep saline soil along the wash and the shallow, very rocky soil on the ridges. The soil on the study site is a shallow, stony clay loam. Limitations are the low annual precipitation (<10 inches) and the shallow, rocky soils which allow rapid runoff. Soil loss from the slopes and wash are evident with moderate pedestaling being noted around base of shrubs in 2000. Over most of the study site however, the vegetative cover helps keep erosion at low levels. The soil is light brown in color and quite variable in depth. Effective rooting depth is estimated at 16 inches, with a hard pan being present at about 9 inches in depth. A profile stoniness index estimated from penetrometer readings shows the majority of rock to be in the upper portion of the profile, but a few readings were near 36 inches in depth. Average soil temperature is 59°F at just over 17 inches. The soil is slightly alkaline (pH of 7.7) and low in phosphorus (4.1 ppm) where 10 ppm has been shown necessary for normal plant growth and development.

Shrubs are the visually dominant class of plants for this community. The key browse species includes Wyoming big sagebrush, black sagebrush, and shadscale. Fourwing saltbush and winterfat are both present, but each provide less than one percent average cover. All key species combined provide over 60% of the total browse cover in both 1995 and 2000. All provide winter forage, although winterfat may be unavailable due to snow depth in some years. Wyoming big sagebrush is the most abundant browse species in density, currently estimated at 2,760 plants/acre. Age class analysis indicates a stable to slightly increasing population with 40% mature, 35% young, and 25% decadent. Thirty-seven percent of the decadent plants were classified as dying in 2000. Percent decadency increased from 10% in 1995 to 25% in 2000. Use also increased to a mostly moderate level with 41% of the population displaying moderate use and an additional 17% showing heavy use. Wyoming big sagebrush showing poor vigor increased from 2% in 1995 to 12% in 2000. Black sagebrush is present at a low density, estimated at 1,280 plants/acre in 1995, and 1,120 plants/acre in 2000. In 1988, 40% of the black sagebrush displayed heavy use, decreasing to 6% in 1995 and 2% in 2000. Moderate use on black sagebrush is currently at 38%, a decrease from a high of 64% in 1995. Percent decadency increased from 9% in 1995 to 32% in 2000. Poor vigor also slightly increased to 11% in 2000, up from 6% in 1995. Recruitment from young plants is moderate at 16%. Increases in decadency and poor vigor for Wyoming big sagebrush and black sagebrush can be attributed in part to the drought experienced statewide in 2000.

Shadscale was estimated at 1,840 plants/acre in 1995, slightly decreasing to 1,600 plants/acre in 2000. Use is mostly light on this species, although 10% of the population shows heavy use. Poor vigor is currently estimated on 13% of the population, with percent decadency increasing from 25% in 1995 to 33% in 2000. Recruitment is

moderately low at 8%. Winterfat shows a stable population of 1,780 plants/acre in 1995 and 1,740 plants/acre in 2000. Use is mostly light, but 17% of the population currently ('00) shows heavy use. Plants classified as decadent and having poor vigor are low at 6% and 3% respectively.

Herbaceous plants composed 51% of the total vegetative cover in 1995 with most of this coming from grasses. Herbaceous cover decreased to 30% in 2000 with most of this loss in herbaceous cover being due to the lack of cheatgrass due to the drought. Cheatgrass contributed nearly 12% average cover and had a quadrat frequency of 63 in 1995. In 2000, cheatgrass provides less than 1% average cover and decreased in quadrat frequency from 63% to 37%. Perennial grasses are moderately low at this site. Thickspike wheatgrass is the most abundant and provides 50% of the grass cover in 2000. It was sampled in 47 of the 100 quadrats. Other species include: Sandberg bluegrass, Indian ricegrass, squirreltail, and needle-and-thread. Sum of nested frequency slightly declined in 2000 for perennial grasses. Forbs are fairly diverse, yet infrequent. Eighteen species were sampled in 1995, producing only 1.5% total cover. Thirteen species were sampled in 2000 with these species providing less than 1% total cover. Long-leaf phlox is the most abundant forb. In addition to cheatgrass, annual forbs also virtually disappeared in 2000 due to the drought.

1988 APPARENT TREND ASSESSMENT

The ephemeral cheatgrass was counted as litter in 1988 leading to the high value of 60%. Basal vegetative cover was low at 2.5%. Pavement cover was 2.5% and variable over the site. Percent bare ground was 33%. Erosion does not currently appear to be a problem on the site. The key browse species, black sagebrush and Wyoming big sagebrush, appear to have stable populations. Use is heavy but decadency rates are low and vigor is generally good. Composition of the understory is poor and dominated by annuals. Only 5 species of perennial grasses and 4 species of perennial forbs were encountered.

1995 TREND ASSESSMENT

Litter cover values are lower because cheatgrass was classified as litter during the 1988 reading. Percent cover for pavement has increased while percent bare ground declined slightly. Some surface erosion is evident where bare ground occurs, but it is not a major problem due to the gentle terrain and the abundance of cheatgrass cover. Trend for soil is slightly improved. Trend for black sagebrush and Wyoming big sagebrush is slightly improved. Utilization of black sagebrush is lower and density has increased. Wyoming big sagebrush density has declined slightly but so has percent decadency, and utilization is not as heavy. Reproductive potential and the proportion of the population that are young plants has increased. The herbaceous understory is in poor condition and composition is far from ideal. Cheatgrass dominates the understory by providing 61% of the herbaceous cover. Annual forbs account for 63% of the forb cover with halogeton being the most common. Sum of nested frequency of perennial grasses increased slightly due to a significant increase in frequency of thickspike and slender wheatgrass. Nested frequency of perennial forbs also increased slightly. Trend is slightly up.

TREND ASSESSMENT

soil - slightly improved, but dependant on annual species for protective cover (4)

browse - slightly up (4)

herbaceous understory - slightly up, but dominated by annual cheatgrass and halogeton (4)

2000 TREND ASSESSMENT

Trend for soil is stable. Ground cover characteristics appear stable with slight increases in both percent litter and bare ground, and a decrease in percent cover of vegetation. Most of the decrease in vegetative cover is a result the drastic decrease in cheatgrass due to drought. Erosion is not severe due to the gentle slope, although

some pedestaling was observed. The ratio of protective ground cover to bare soil is still high enough to warrant a stable trend for soil at this time. Trend for browse is slightly down. The key species, Wyoming big sagebrush, black sagebrush, and shadscale all show increases in percent decadency and the proportion of plants displaying poor vigor. Heavy use slightly increased on Wyoming big sagebrush in 2000. Young recruitment is moderate for shadscale (8%), moderately high for black sagebrush (16%), and very high for Wyoming big sagebrush (35%). Increases in poor vigor and decadency are likely a result of drought and should improve with normal precipitation patterns. Trend for the herbaceous understory is stable. Sum of nested frequency of perennial species decreased slightly in 2000, but not enough to warrant a downward trend, especially in a drought year.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down (2)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 10 , Study no: 9

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
G	Agropyron dasystachyum	_a 7	_b 110	_b 132	3	41	47	1.83	3.28
G	Bromus tectorum (a)	-	_b 209	_a 97	-	63	37	11.78	.77
G	Carex spp.	-	3	-	-	2	-	.01	-
G	Oryzopsis hymenoides	_b 114	_a 54	_a 46	49	27	21	.84	.39
G	Poa secunda	_a 31	_c 125	_b 88	16	54	35	1.75	.81
G	Sitanion hystrix	_b 85	_a 56	_a 46	35	21	18	1.13	.63
G	Stipa comata	22	23	22	9	10	10	.34	.66
Total for Annual Grasses		0	209	97	0	63	37	11.78	0.77
Total for Perennial Grasses		259	371	334	112	155	131	5.93	5.79
Total for Grasses		259	580	431	112	218	168	17.71	6.57
F	Arenaria fendleri	-	-	3	-	-	1	.00	.00
F	Astragalus spp.	_a -	_b 13	_a 1	-	7	1	.06	.00
F	Astragalus utahensis	-	-	1	-	-	1	-	.00
F	Cordylanthus kingii (a)	-	5	-	-	3	-	.01	-
F	Cryptantha spp.	2	5	-	2	2	-	.03	-
F	Descurainia pinnata (a)	-	_b 48	_a 18	-	23	10	.14	.15
F	Erigeron pumilus	-	4	4	-	2	2	.01	.01
F	Haplopappus acaulis	_a -	_{ab} 2	_b 9	-	1	5	.00	.05
F	Halogeton glomeratus (a)	-	_b 13	_a -	-	5	-	.71	-
F	Lappula occidentalis (a)	-	_b 25	_a 5	-	10	2	.12	.06
F	Lepidium montanum	_b 31	_b 26	_a -	15	11	-	.11	-
F	Machaeranthera canescens	6	2	-	3	2	-	.01	-

T y p e	Species	Nested Frequency			Quadrat Frequency			Average Cover %	
		'88	'95	'00	'88	'95	'00	'95	'00
F	<i>Machaeranthera grindelioides</i>	_a -	_b 7	_{ab} 4	-	3	4	.04	.02
F	<i>Penstemon</i> spp.	-	-	4	-	-	2	-	.01
F	<i>Petradoria pumila</i>	-	1	-	-	1	-	.00	-
F	<i>Phlox austromontana</i>	-	8	6	-	3	3	.04	.16
F	<i>Phlox longifolia</i>	_a -	_b 41	_b 37	-	18	15	.11	.10
F	<i>Polygonum douglasii</i> (a)	-	4	-	-	1	-	.00	-
F	<i>Sphaeralcea coccinea</i>	6	4	11	3	2	4	.03	.09
F	<i>Streptanthus cordatus</i>	-	1	-	-	1	-	.00	-
F	<i>Townsendia incana</i>	_a -	_b 12	_b 14	-	5	8	.05	.04
Total for Annual Forbs		0	95	23	0	42	12	1.00	0.21
Total for Perennial Forbs		45	126	94	23	58	46	0.52	0.50
Total for Forbs		45	221	117	23	100	58	1.52	0.71

Values with different subscript letters are significantly different at $\alpha = 0.10$ (annuals excluded)

BROWSE TRENDS --

Herd unit 10 , Study no: 9

T y p e	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	<i>Artemisia frigida</i>	33	22	.15	.17
B	<i>Artemisia nova</i>	24	20	2.13	1.35
B	<i>Artemisia tridentata</i> <i>wyomingensis</i>	44	50	5.95	5.68
B	<i>Atriplex canescens</i>	0	0	.00	-
B	<i>Atriplex confertifolia</i>	54	49	3.14	3.50
B	<i>Ceratoides lanata</i>	40	36	.69	.22
B	<i>Gutierrezia sarothrae</i>	11	12	.02	.01
B	<i>Juniperus osteosperma</i>	0	1	-	-
B	<i>Opuntia</i> spp.	2	2	-	.03
B	<i>Pinus edulis</i>	0	1	-	.03
B	<i>Sarcobatus vermiculatus</i>	19	20	6.06	6.24
Total for Browse		227	213	18.17	17.24

CANOPY COVER --

Herd unit 10 , Study no: 9

Species	Percent Cover
	'00
<i>Juniperus osteosperma</i>	.20

BASIC COVER --

Herd unit 10 , Study no: 9

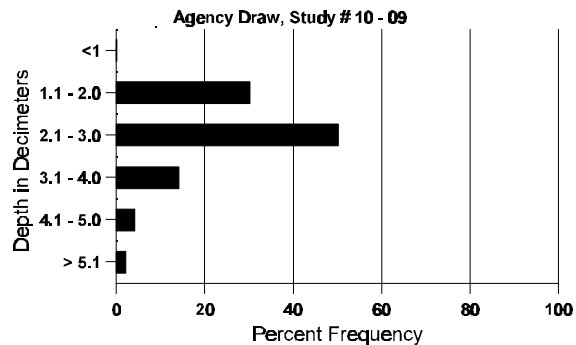
Cover Type	Nested Frequency		Average Cover %		
	'95	'00	'88	'95	'00
Vegetation	339	289	2.50	36.44	26.27
Rock	174	124	.50	3.76	1.76
Pavement	242	283	2.50	8.98	11.08
Litter	382	365	60.00	33.42	39.20
Cryptogams	128	162	1.50	2.37	5.07
Bare Ground	298	320	33.00	25.00	32.34

SOIL ANALYSIS DATA --

Herd Unit 10, Study # 9, Study Name: Agency Draw

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
16.22	58.8 (17.48)	7.7	29.0	40.4	30.6	1.4	4.1	329.6	0.9

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 10 , Study no: 9

Type	Quadrat Frequency		Pellet Transect	
	'95	'00	Pellet Groups per Acre 00	Days Use per Acre (ha) 00
Rabbit	4	10	209	N/A
Horse	5	8	331	N/A
Elk	1	3	148	11 (29)
Deer	19	29	635	49 (121)
Cattle	1	-	0	0 (0)

BROWSE CHARACTERISTICS --

Herd unit 10 , Study no: 9

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia frigida																		
S	88	13	-	-	-	-	-	-	-	-	13	-	-	-	866			13
	95	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
	00	3	-	-	-	-	-	-	-	-	3	-	-	-	60			3
Y	88	21	-	-	-	-	-	-	-	-	21	-	-	-	1400			21
	95	6	-	-	-	-	-	-	-	-	6	-	-	-	120			6
	00	8	-	-	-	-	-	-	-	-	8	-	-	-	160			8
M	88	57	-	-	-	-	-	-	-	-	57	-	-	-	3800	8	3	57
	95	43	-	-	4	-	-	-	-	-	47	-	-	-	940	11	7	47
	00	18	3	1	2	-	-	-	-	-	24	-	-	-	480	5	7	24
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%			-80%							
'95		00%			00%			00%			-38%							
'00		09%			03%			00%										
Total Plants/Acre (excluding Dead & Seedlings)														'88	5200	Dec:	0%	
														'95	1060		0%	
														'00	660		3%	
Artemisia nova																		
S	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	95	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
Y	88	5	1	-	-	-	-	-	-	-	6	-	-	-	400			6
	95	5	4	-	-	-	-	-	-	-	9	-	-	-	180			9
	00	8	1	-	-	-	-	-	-	-	9	-	-	-	180			9
M	88	-	-	4	-	-	-	-	-	-	4	-	-	-	266	11	21	4
	95	12	34	3	-	-	-	-	-	-	49	-	-	-	980	15	18	49
	00	14	14	1	-	-	-	-	-	-	29	-	-	-	580	13	20	29
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	2	3	1	-	-	-	-	-	-	2	-	-	4	120			6
	00	7	6	-	5	-	-	-	-	-	12	-	-	6	360			18
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	100			5
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	120			6
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		10%			40%			00%			+48%							
'95		64%			06%			06%			-13%							
'00		38%			02%			11%										
Total Plants/Acre (excluding Dead & Seedlings)														'88	666	Dec:	0%	
														'95	1280		9%	
														'00	1120		32%	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata wyomingensis																		
S	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	95	49	-	-	-	-	-	-	-	-	49	-	-	-	980		49	
	00	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
Y	88	19	2	-	-	-	-	-	-	-	18	-	2	1	1400		21	
	95	54	2	-	1	-	-	-	-	-	57	-	-	-	1140		57	
	00	39	8	-	-	-	-	1	-	-	48	-	-	-	960		48	
M	88	8	14	4	-	-	-	-	-	-	26	-	-	-	1733	21 25	26	
	95	26	32	3	-	-	-	-	-	-	60	-	1	-	1220	21 29	61	
	00	10	27	11	1	1	5	-	-	-	54	-	1	-	1100	23 30	55	
D	88	4	2	5	-	-	-	-	-	-	11	-	-	-	733		11	
	95	2	11	-	-	-	-	-	-	-	12	-	-	1	260		13	
	00	5	16	5	2	4	2	1	-	-	19	-	3	13	700		35	
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	160		8	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	340		17	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		31%			16%			05%			-32%							
'95		34%			02%			02%			+ 5%							
'00		41%			17%			12%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	3866	Dec:	19%			
												'95	2620		10%			
												'00	2760		25%			
Atriplex canescens																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	0		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Atriplex confertifolia																		
Y	88	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	95	9	-	-	-	-	-	-	-	-	9	-	-	-	180			9
	00	4	-	-	2	-	-	-	-	-	6	-	-	-	120			6
M	88	20	2	-	-	-	-	2	-	-	24	-	-	-	1600	16	18	24
	95	52	7	-	1	-	-	-	-	-	59	-	1	-	1200	14	21	60
	00	28	5	7	8	-	-	-	-	-	48	-	-	-	960	15	20	48
D	88	6	-	-	-	-	-	-	-	-	6	-	-	-	400		6	
	95	20	3	-	-	-	-	-	-	-	14	-	4	5	460			23
	00	16	2	1	6	-	-	1	-	-	16	-	-	10	520			26
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	60			3
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	40			2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		06%			00%			00%			-16%							
'95		11%			00%			11%			-13%							
'00		09%			10%			13%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	2200	Dec:	18%			
												'95	1840		25%			
												'00	1600		33%			
Ceratoides lanata																		
S	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	95	5	-	-	-	-	-	-	-	-	5	-	-	-	100			5
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	88	14	-	-	-	-	-	-	-	-	14	-	-	-	933		14	
	95	17	-	-	-	-	-	-	-	-	17	-	-	-	340			17
	00	23	2	1	-	-	-	-	-	-	26	-	-	-	520			26
M	88	2	1	-	-	-	-	-	-	-	2	-	1	-	200	6	6	3
	95	67	4	-	-	-	-	-	-	-	71	-	-	-	1420	10	9	71
	00	28	6	14	5	-	-	3	-	-	56	-	-	-	1120	11	9	56
D	88	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
	00	1	1	-	-	2	-	1	-	-	2	-	-	3	100			5
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		05%			00%			05%			+29%							
'95		04%			00%			00%			- 2%							
'00		13%			17%			03%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	1266	Dec:	11%			
												'95	1780		1%			
												'00	1740		6%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
S	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	95	12	-	-	-	-	-	-	-	-	12	-	-	-	240		12	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
	00	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
M	88	12	-	-	-	-	-	-	-	-	12	-	-	-	800	7 5	12	
	95	8	-	-	-	-	-	-	-	-	8	-	-	-	160	9 11	8	
	00	16	-	-	-	-	-	-	-	-	16	-	-	-	320	5 8	16	
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	8	-	-	-	-	-	-	-	-	1	-	-	7	160		8	
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%			-58%							
'95		00%			00%			00%			+39%							
'00		00%			00%			25%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	800	Dec:	0%			
												'95	340		0%			
												'00	560		29%			
Juniperus osteosperma																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20		1	
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	1	-	-	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	0		-			
												'00	20		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia spp.																		
S	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	2	3	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20	5	14	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20	2	9	
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	1	-	-	-	-	-	-	-	-	-	-	-	1	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%			-39%							
'95		00%			00%			00%			+ 0%							
'00		00%			00%			50%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	66	Dec:	0%			
												'95	40		50%			
												'00	40		50%			
Pinus edulis																		
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	0		-			
												'00	20		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Sarcobatus vermiculatus																		
Y	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	6	-	-	-	-	-	-	-	-	6	-	-	-	120		6	
	00	54	-	-	-	-	-	-	-	-	54	-	-	-	1080		54	
M	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	54	63	
	95	26	-	-	-	-	-	-	-	-	26	-	-	-	520	34	49	
	00	5	-	-	23	-	-	-	-	-	28	-	-	-	560	37	54	
D	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
	00	-	-	-	2	-	-	-	-	-	1	-	-	1	40		2	
X	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%			+90%							
'95		00%			00%			00%			+60%							
'00		00%			00%			01%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	66	Dec:	0%			
												'95	680		6%			
												'00	1680		2%			
Sclerocactus																		
M	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	3	3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'88	0	Dec:	-			
												'95	0		-			
												'00	0		-			